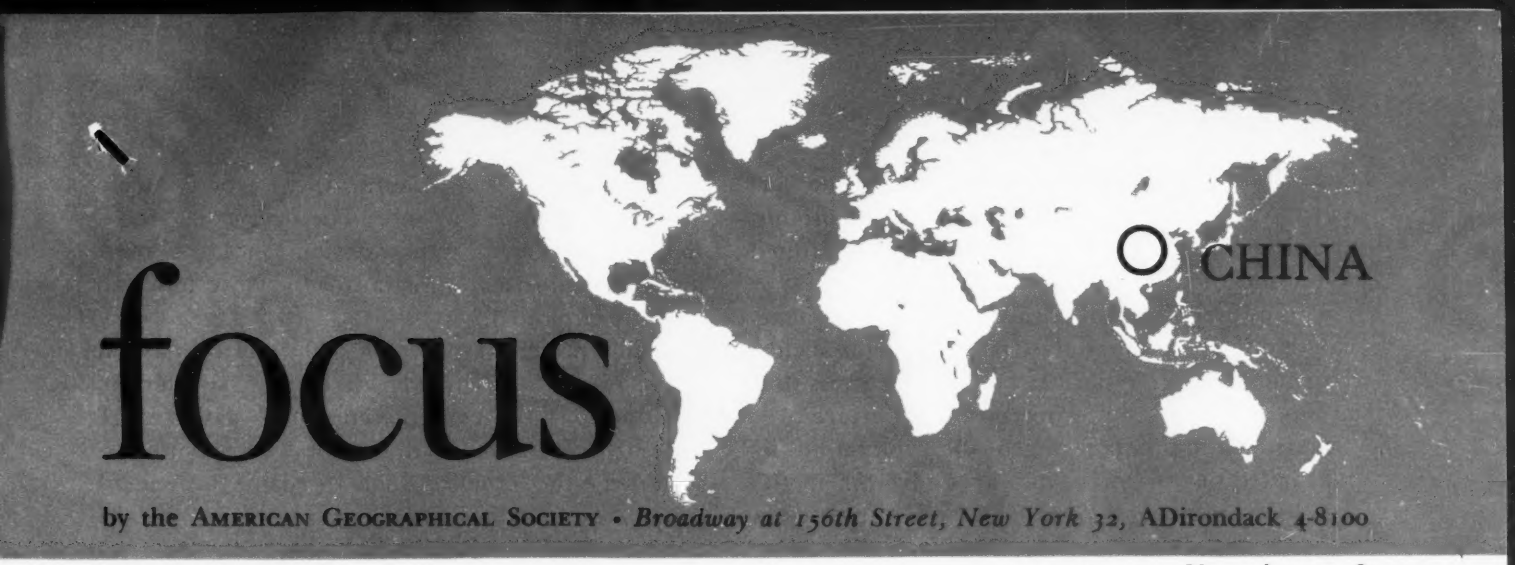

focus

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ALICE TAYLOR, EDITOR

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China's Resources for Heavy Industry

Soon after the Chinese Communists gained control, in 1949, they initiated an ambitious program of economic development aimed at transforming China from an agricultural into an industrial country—as quickly as possible. The task, at the outset, was a formidable one. Here was a nation of some 600 million people, few of whom could read or write, few of whom had ever seen a modern machine, and a great many of whom were undernourished and ill. Furthermore, vast areas were inaccessible either by road or railroad, information concerning the location, quality, and quantity of the basic mineral resources needed for industrialization was scarce, and capital was even scarcer. The great majority of the farmers, the backbone of the country, existed in a state of perpetual poverty despite skillful and intensive use of their land.

Obviously, in this agricultural country, the initial surplus capital for industrialization had to come mainly from an increase in farm production. The Communists believed that such an increase would result from redistribution of land, collectivization, and mechanization, and recent government reports would seem to support this theory: rice production increased from 48.6 million tons in 1949 to 82.7 million in 1956; wheat, from 13.8 million to 24.8 million; and cotton from 444,000 to 1.64 million.

Mainland China must rely chiefly on its own meager financial resources because it has cut itself off from Western sources of loans and investments and has received only limited financial aid from the Soviet Union. The total Soviet loans during the First Chinese Five-Year Plan (1953-57) provided only three per cent of the state revenue. Domestic forced saving must therefore supply the huge amounts being invested in industry.

Effective measures have been taken to bring the nation's economic surplus into the state's hands and channel it into industrial construction. This means that the population has had to accept the prospect of severe economic austerity for the indefinite future; but, as the Chinese say, austerity is not poverty.

In recent years about one half of the national budget, which rose from $3 billion in 1950 to $15 billion in 1958, has been invested in construction of all sorts. Apart from the large, centrally-administered projects, a crash program initiated in 1958 has resulted in the building of hundreds of thousands of small factories, workshops, and mines. Making use of the existing vast reservoir of labor, these are turning out a host of items needed locally, such as simple farm tools.

Should the present announced goals be achieved, Communist China will have acquired a significant

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industrial base by the middle 1960's and in fact will have outstripped in heavy industrial production all other nations in the world except the United States and the Soviet Union.

The question is, will China's mineral raw material resources permit industrial growth on such a tremendous scale? What has been the progress thus far, and what are the prospects for the future?

A systematic program of geologic exploration being carried out by the Communist government has revealed new deposits of key minerals and reserves hitherto unsuspected in known deposits. According to Chinese data, the country's reserves of tungsten, antimony, and tin are now the largest in the world. Presently known resources of iron ore, copper, lead, aluminum, and coal are also said to be among the largest in the world.

POWER FOR INDUSTRY. Perhaps the most spectacular progress in the current effort has been achieved in coal mining. Coal output before the days of the Communists was 62 million metric tons in the peak year of 1942; in 1957 it rose to 130 million tons, and is expected to reach 210 million in 1958. China has thus become the world's fifth-largest coal producer, following after the United States, the Soviet Union, West Germany, and Great Britain.

Most of the coal is of bituminous grade, and most of this is suitable for conversion into coke for the iron and steel industry. Deposits are widely scattered. Manchuria, which had a headstart under Japanese rule between 1932 and 1945, continues to supply a large part of China's coal. Here are located two of the biggest mining centers—Fushun and Fusin, each aiming at an output of 11 million tons in 1958.

The largest coal producer outside of Manchuria is the Kailan Basin in Hopei Province, also aiming at 11 million tons in 1958. Coal is also mined at Hwainan in Anhwei Province, Tsaochwang in Shantung, Tsiaotso in Honan, and Tatung in Shansi. Most of these are old centers that have been reconstructed and expanded. Among the new centers developed mainly by the Communists are Hohpi and Pingtingshan in Honan and Tungchwan in Shensi.

In contrast to its abundant coal resources, China is poor in petroleum. Before 1949, the only commercial oil fields were at Yümen in Kansu and at Tushantze in Sinkiang. Intensive exploration has now uncovered promising oil-bearing formations at Karamai, north of Tushantze, and in the Tsaidam Basin of Tsinghai Province. The new fields are remote from present transportation lines and must await the construction of railroads before they can be fully exploited.

China produced only 800,000 tons of natural crude oil in 1957, nearly all of it from Yümen. Natural oil, however, represents only slightly more than half of the total output. The rest is synthetic, obtained either from oil shale or coal. Synthetic oil comes from a large number of places, but chiefly from Fushun, in Manchuria, where oil shale resources overlie the coal deposits. Even including its synthetic oil, China's output in 1957 was not quite 1.5 million tons, meeting less than half of the country's requirements. The rest was imported from the Soviet Union: 380,000 tons of crude oil, and 1.4 million tons of refined products, including gasoline, kerosene, diesel fuel, and lubricants. Expected 1958 production in China is 2.2 million tons.

Hopes are high for the newly discovered western fields, and the goal for 1962 has been set at 4.5 million tons from the Karamai field and 3 million tons from the Tsaidam Basin. If these goals are attained, the country should be virtually self-sufficient.

With respect to electric power, China still lags far behind the leading industrial nations. In 1957, it produced only 19 billion kilowatt-hours, compared with 210 billion in the Soviet Union and about 700 billion in the United States. However, China's production has been rising at the rate of 20 to 25 per cent a year, and is expected to reach 27.5 billion kilowatt-hours in 1958.

Close to one-fourth of the total power is generated by hydroelectric plants, and the further harnessing of several large rivers will play a major role in expansion plans. The biggest existing stations are in Manchuria at Fengman on the Sungari River, with a capacity of 567,000 kilowatts and at Supung on the Yalu River, with a capacity of 700,000 kilowatts which China shares with North Korea.

The largest projects now being constructed are two stations on the Yellow River: the Sanmensia plant on the Honan-Shansi border, and the Liukia Reservoir one on the Kansu-Tsinghai border. Each of these is expected to have a generating capacity of 1 million kilowatts. The contribution that they will make is evident if one realizes that the capacity of all Chinese power plants in 1957 was only 4 million kilowatts.

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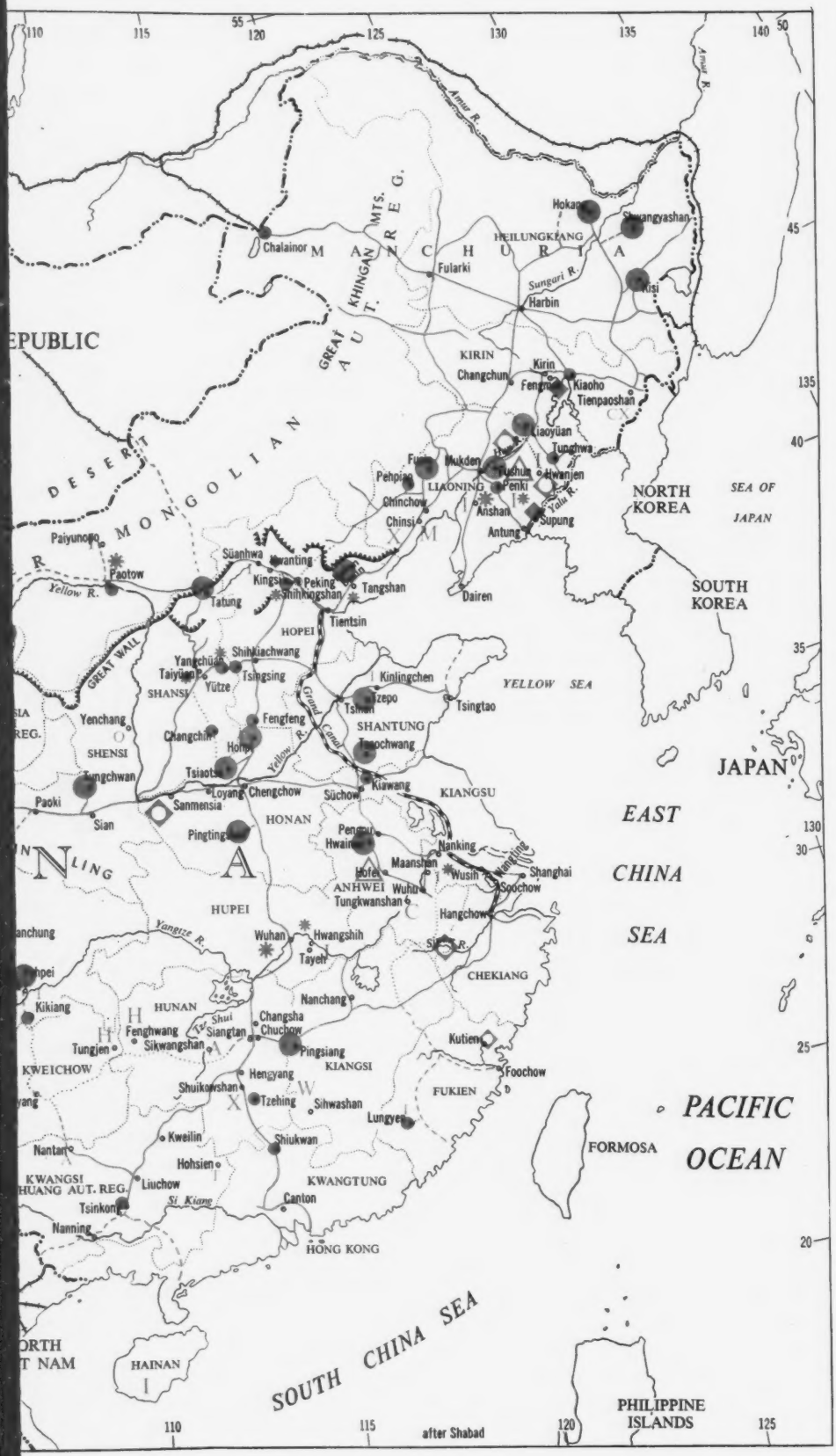

Other major hydroelectric stations now under construction include the 580,000-kilowatt plant on the Sinan River on the Chekiang-Anhwei border; a 360,000-kilowatt project on the Yili River, a tributary of the Yangtze, in Yünnan; a 290,000-kilowatt plant on the Hun River, a tributary of the Yalu, in Liaoning; a 340,000-kilowatt project on the Tze Shui in Hunan; and a 300,000-kilowatt station on the Min River in Szechwan.

At the same time, thermal power stations using mainly coal for fuel are being built in most of the large industrial centers, and power transmission grids are gradually taking shape. With the completion of a 220,000-volt line between Tangshan and Chinchow, the Manchurian grid was linked this year with that in the Peking-Tientsin-Tangshan area. Other grids are planned for the mining and manufacturing cities of Kiangsu, Chekiang, Shansi, Shensi, Honan, Kansu, and Tsinghai.

METALS FOR INDUSTRY. China appears to have adequate supplies of iron ore, key metal in any modern industrial nation, though much of it is of low grade and requires concentration. A July 1957 estimate placed reserves at 11 billion tons. The average metal content of the ores at present is 35 per cent. In 1957, for instance, 19.4 million tons of crude ore yielded 5.9 million tons of pig iron. No less than 50 million tons of ore were expected to be mined in 1958.

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Before the Second World War, most of China's iron was exported, chiefly to Japan. Now, virtually all of it is smelted within the country and used for such items as turbines, machine tools, rails, and agricultural implements. A large share of the iron and steel industry is still concentrated in Manchuria, especially at Anshan. This steel center, originally developed by the Japanese, was seriously damaged and partly dismantled during the period after the war, but has now been rebuilt and expanded. In 1957, Anshan produced 3.3 million tons of pig iron out of a national total of 5.9 million, and 2.9 million tons of steel out of 5.3 million.

Two large iron and steel plants, each with a capacity of 1.5 million tons of steel, are under construction at Wuhan in Hupei and at Paotow in Inner Mongolia. Paotow, which uses iron ore from the near-by Paiyünopo mine, is expected to complete its first 900,000-ton blast furnace in 1959. The first blast furnace at Wuhan, based on the Tayeh ore deposits, went into operation in September. A fourth large plant is planned in the Kiuchuan area of Kansu, based on ore discovered in the Kilien Mountains.

In addition to these large projects, there are medium-sized plants at Shihkingshan, just west of Peking; at Taiyüan, in Shansi; at Chungking, in Szechwan; and at Maanshan, in Anhwei. Some of these are being modernized and expanded, and many others are under construction.

The provisional Second Five-Year Plan, adopted in 1956, set a goal of 10.5 to 12 million tons of steel for 1962. However, as a result of the 1958 crash program, hundreds of thousands of primitive small furnaces throughout the nation are now making iron and steel. As the year is drawing to a close, China is driving feverishly toward a goal of 10.7 million tons of steel—double the output for the preceding year, and just about as much as had originally been scheduled for 1962.

Before the Second World War, China supplied 50 to 60 per cent of the world's tungsten, an important alloy in high-speed tool steels. It also contributed 40 to 50 per cent of the world's antimony, used to impart hardness to lead alloys; and about 10 per cent of the world's tin.

The main producing centers at present are: Sihwashan in Kiangsi, for tungsten; Sikwangshan in Hunan, for antimony; and Kokiu in Yünnan, for tin. China exports these metals, mainly to the Soviet Union. It also exports molybdenum concentrate, obtained from the mine at Yangkiachangtze in Liaoning, and mercury from the Fenghwang-Tungjen area on the Hunan-Kweichow border.

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